

REMARKS

Claims 1-11 are pending in the present application. Claims 1 and 7 have been amended. Applicant respectfully requests entry of the foregoing amendments to Claims 1 and 7 prior to further examination. No new matter has been introduced.

Regarding Section 103 Rejections

Claims 1-5 and 7-10 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Leung et al. (U.S. Patent No. 6,466,964; hereinafter Leung) in view of Chen et al. (U.S. Patent No. 6,658,258; hereinafter Chen).

The present invention is directed to a Mobile IP network infrastructure that includes a proxy mobile node for providing Mobile IP registration services on behalf of a mobile node that does not participate in Mobile IP registration. As shown in Fig. 3, the system includes a mobile node 10, a base station 19, and a home network 27. The base station 19 further includes a proxy mobile node 290 and a foreign agent 190 located separately and distinctly from each other at the base station 19. (See Specification, page 10, lines 1-5; and Fig. 3).

In operation, when a mobile node 10 enters a service area it detects a base station 19 from its broadcast pilot signal. In response, the mobile node 10 transmits link layer messages that provide the identity of the mobile node 10 to the base station 19. Based on the identity of the mobile node 10, the proxy mobile node 290 accesses a database to obtain a set of IP addresses corresponding to the mobile node 10, the mobile node's home agent 25, and the foreign agent 190 (FA) also located at the base station 19. The proxy mobile node 290 then generates and sends a registration request as a network message to the IP address of the foreign agent 190, which relays the request to the home agent 25. The home agent 25, in turn, registers the proxy mobile node 290 as being identified with the mobile node 10. This same process repeats each time the mobile node 10 enters into a new service area having its own proxy mobile node 290 and separate foreign agent 190. Thus, the use of a proxy mobile node 290 at each base station 19 location in a Mobile IP network: 1) significantly simplifies the configuration of the mobile node (MN) because no additional software needs to be installed on the mobile node for performing the Mobile IP functionality; 2) components of existing systems (base stations and foreign agents) do

not have to be modified because the proxy mobile node uses existing IP addresses to communicate between the existing components; and 3) foreign agents do not have to be installed at all base station locations. (See Specification, page 10, line 5 – page 12, line 10; and Fig. 3).

In contrast, Leung does not include a proxy mobile node as claimed in the present invention. Rather, Leung describes a method and an apparatus where a foreign agent performs registration between a mobile node and its home agent. In operation, the mobile node detects the vicinity of a first foreign agent and sends a registration request to the first foreign agent. The first foreign agent sends the registration request to the home agent. When the home agent receives the registration request from a first foreign agent, the home agent updates a mobility binding table to associate the first foreign agent with the mobile node. In addition, the home agent notifies a second foreign agent to update its visitor table to reflect roaming of the mobile node from the second foreign agent to the first foreign agent. In all instances, the foreign agent must be modified to perform mobile IP registration. (See Leung, Col. 5, line 44 – Col. 7, line 61; and Figs. 2 and 3).

Leung does not teach, suggest, or otherwise make obvious “a proxy mobile node (PMN)” that “retrieve[s] an IP address for each of the MN, FA and HA from a database based on the identity of the MN... the PMN generating and sending a registration request as a network message with the IP address of the MN to the FA on behalf of the mobile node (MN)” as claimed in amended Claim 1 because Leung does not use a proxy mobile node to perform registration on behalf of the mobile node. Rather, Leung uses a modified foreign agent to perform registration on behalf of the mobile node. The foreign agent of Leung would not include a proxy mobile node because the modified foreign agent would not look to retrieve its own IP address and/or send a registration request to itself as claimed in the present invention. Further, the present invention uses a proxy mobile node such that existing network infrastructures can be used without modifications whereas Leung would need to replace or modify existing foreign agents. Thus, Leung does not make obvious amended Claim 1.

Amended Claim 7 includes similar limitations to amended Claim 1 is allowable for the same reasons.

Applicant respectfully requests the withdrawal of the rejections to amended Claims 1 and 7 under 35 U.S.C. 103.

Claims 2-4 and 8-10 depend from amended base Claims 1 and 7 respectively and are allowable for the same reasons. Applicant respectfully requests the withdrawal of the rejections to Claims 2-4 and 8-10 under 35 U.S.C. 103.

Claims 6 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Leung in view of Chen and in further view of Perkins. ("IP Mobility Support," RFC 2002, October 1996).

As stated above, amended Claims 1 and 7 are considered allowable. Thus, dependent Claims 6 and 11 are also allowable. Applicant respectfully requests the withdrawal of the rejections to amended Claims 6 and 11 under 35 U.S.C. 103.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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